thereby indirectly diverts retail sales from competitors to the BOC or its affiliate. A BOC might also divert demand away from competitors and towards its affiliates directly, without forcing them to raise prices. This might be done by *degrading competitors' quality*, such as by foot-dragging in providing new access arrangements, or by *appropriating competitively sensitive information* about customers obtained in the course of supplying rivals with bottleneck inputs. I will label all these non-price methods to weaken rivals—both in long-distance and in local services—under the general rubric of "access discrimination."

102. *Inefficiencies.* Access discrimination is a particularly inefficient form of rivalry. Raising competitors' costs is directly harmful, even if it does not lead to higher prices. In fact, prices are likely to rise, this both harms consumers, and creates additional social losses from output reduction. Degrading competitors' quality too is directly inefficient, harming both competitors and consumers. In addition, these practices and the misappropriation of competitively sensitive information could—by weakening competitors or discouraging entry—reduce the variety of products available the other innovations that competitors might bring to a market. These inefficiencies will be borne by both competitors and consumers.

2. Over-pricing of inputs

103. Overpricing of inputs needed by competitors, or of outputs that are complementary to those sold by competitors, also is inefficient. The social harm here occurs not because of the high prices themselves but because these high prices inefficiently reduce the quantities purchased. However, setting prohibitively high prices for bottleneck inputs, such as call termination, is tantamount to refusing to supply such inputs and thus can create inefficiencies of comparable magnitudes to those under access discrimination. Steep overpricing of inputs can be seriously anticompetitive even well short of complete exclusion of rivals: by greatly inflating rivals' costs, it can artificially and significantly depress their market presence.

3. Under-pricing of outputs

104. BOC entry conceivably could stifle competition also by giving the BOC a new instrument—charging artificially low prices for long-distance services. The arguments can be usefully grouped into three categories, that differ in their plausibility and welfare effects.

105. The first is *predatory pricing* or variants thereof: a BOC would set prices temporarily low in order to stifle competition and subsequently raise prices.[37] Economists are somewhat skeptical of predation arguments, especially when some rivals are well-financed corporations such as the major IXCs, absent regulatory cross-subsidy.

106. The second argument invokes such *cross-subsidy*. A BOC may set an artificially low price that could be profitable to the BOC whether or not price can be subsequently raised in the targeted market; such behavior could be profitable because it entails cross-subsidy from the BOC's regulated activities. As such, it also is inefficient. Section B.1.a below addresses this argument, concluding that cross-subsidy incentives are likely to be weaker for the BOCs today due to increased reliance on price caps and other "incentive regulation."

107. The third argument does not invoke predation or cross-subsidy, but a *price squeeze*. Because a BOC charges IXCs access prices well above its costs, it has an artificial advantage in competing with IXCs for long-distance services. This argument is evaluated in section C.

B. Why BOC Entry Increases Anticompetitive Incentives

108 It is helpful to distinguish anticompetitive incentives driven by attempts to circumvent regulation of price or profit, from incentives that do not hinge on the presence of regulation.

1. Regulatory Evasion

a. Cost misallocation ("cross-subsidization")

109. *Incentives and methods*. Traditional U.S. regulation of public utilities, including local telephone companies, was known as cost-of-service or rate-of-return regulation, because prices were intended to offer the firm a reasonable opportunity to cover its costs including a fair rate of return on capital. A firm whose prices are regulated in such a manner and which also has unregulated (or more lightly regulated) operations in competitive markets will have incentives to shift profit from the

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[37] For instance, some have argued that a BOC could use low prices of long-distance services to stifle not only long-distance competition but also *local* competition. A BOC's prices for many local services are likely to be regulated but not its long-distance prices; by marketing complex bundles of both services a BOC might offer targeted discounts through its long-distance prices to those local customers most vulnerable to competition. The greater complexity of detecting and proving predatory pricing when part of a complex bundle of services might help the BOC escape antitrust scrutiny of such pricing.

regulated to the unregulated side: the higher profit earned by unregulated operations flows directly to shareholders, while the lower profit of the regulated side allows it to "justify" requests for higher allowable prices. Such profit shifting can occur by misallocating various costs of the unregulated entity to the regulated one, behavior more commonly known as "cross-subsidization."[38]

110. *Anticompetitive effects.* The incentives to engage in cost misallocation stem from a desire to circumvent regulation; but such behavior can have incidental effects of distorting competition. Overpaying an affiliate for its services artificially favors it in competing for sales to the regulated side; misallocating the affiliate's costs to the regulated side (and thus ratepayers) favors it in competing for outside customers by artificially reducing its costs and thereby allowing it to set artificially low prices. These competitive distortions mean that winners are no longer determined on the merits.[39]

111. *Accounting safeguards and separate subsidiaries.* To help detect and prevent cost misallocations, regulators often subject firms to detailed accounting safeguards and sometimes require that unregulated, competitive activities be undertaken through separate subsidiaries. Section 272 of the Act imposes such requirements on BOCs wishing to offer long-distance services. Although such safeguards have some bite, it is widely acknowledged that they have not eliminated cost misallocation in the past, and it is naive to believe they could do so in the future if the firm has strong incentives to engage in cost misallocation.

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[38] These cost misallocations can involve purely accounting manipulations, such as mischaracterizing costs attributable to the unregulated side as "joint and common" to both operations, actual payments, such as overpaying the unregulated affiliates for services or assets they provide or undercharging them for services or assets provided to them, or real resource misallocations, such as selecting production methods that are not cost-minimizing but display more common costs that can then be misattributed. Misallocating revenues of the regulated operation to the unregulated one is conceptually similar, as it leaves the regulated side with a greater deficit which can be used to defend requests for rate increases. I prefer the term "cost misallocation" to cross-subsidization because the latter is sometimes wrongly taken to require that the price of the unregulated service must be below marginal cost. As the preceding examples indicate, the phenomenon is more general.

[39] Additional inefficiencies arise quite aside from the distortion of competition in the unregulated markets. First, prices increase to consumers of the regulated products. Second, any real resource misallocations are directly costly, for example, biasing the choice of production methods towards ones that entail excessive common costs. Finally, even if prices of unregulated services fall (which they need not do, e.g., if the cost misallocation involves only fixed and not variable costs), they would be artificially below cost, causing consumption of unregulated services to be excessive.

112. *Price cap regulation.* Importantly, however, the BOCs argue that incentives to misallocate costs no longer exist because in recent years the FCC and state commissions have moved from traditional cost-of-service regulation towards pure price-caps, that sever the link between a firm's allowable regulated price and its costs. Cost misallocation then loses its purpose, because higher reported costs for the regulated side no longer yield higher prices.

113. These claims overstate the extent of the regulatory changes, for two reasons. First, traditional regulation exhibited some lag between rate cases, during which period prices were not continuously adjusted towards cost. Second, today's regulation does not—and cannot— amount to pure price caps Price caps can never be pure, but are periodically revised.[40] In addition, some schemes of "incentive regulation" do not involve price caps, but require adjustment of prices to share profits (or losses) with consumers once profits are outside certain specified bands. Therefore, a regulated firm's allowable future prices will ultimately depend on its past costs, which re-introduces some incentives to engage in cost misallocation.

114 Nevertheless, these regulatory changes do seem to have markedly altered BOCs' incentives The BOCs have embarked on aggressive cost-cutting programs, which financial analysts and others attribute to the regulatory changes.[41] These efforts suggest the BOCs assign some credibility to the new regulatory promises. But in that case, they also would not seem to have a strong basis for counting on regulators to allow rapid price increases beyond stipulated levels in response to increased costs due to cost misallocation (or other reasons).[42] In short, incentives to engage in cost

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[40] Pure price caps would establish a permanent formula for determining the firm's maximum allowable prices at all future dates, based on initial forecasts of the firm's attainable costs (and perhaps indexed to variables that influence costs but lie outside the firm's control, e.g., the overall inflation rate); allowable prices would not be revised in light of the firm's actual cost realizations. But in practice, revisions will necessarily occur. One reason is forecasting errors: if regulators underestimate the firm's true costs and stick to the allowed prices, the firm will go bankrupt; if they overestimate costs, the firm will earn large profits that invite strong political pressure to lower allowable prices. Another reason for revising price caps is the introduction of new services, *if* these services are to make a contribution towards covering the firm's fixed and common costs. In light of all this, it is not surprising that the FCC and most if not all states have already revised their initial formulas.

[41] See, for example, Merrill Lynch, *Telecom Services—RBOCs & GTE*, Second Quarter Review, August 9, 1996.

[42] Moreover, regulators are especially protective of important customer classes for which local competition is likely to develop more slowly, such as rural and low-volume residential customers. They would thus be

misallocation are certainly more attenuated today, which also serves to lower the risks of the BOCs engaging in anticompetitively low pricing.

b. Leverage incentives due to asymmetric regulation

115. A different and more serious anticompetitive incentive involves leveraging of market power from the price-constrained bottleneck to adjacent, unregulated markets, by engaging in the myriad forms of (non-price) access discrimination. As was explained in section I.D.2, incentives for leverage stem in large part from asymmetric regulation: the firm's prices for bottleneck services are regulated, but its prices for other services that rely on the bottleneck services are not regulated (or less tightly regulated). Here it is worth clarifying a few points.

116 First, contrary to some claims, access discrimination is not costless to a BOC since it reduces BOC input sales to the targeted carriers [43] Nevertheless, a BOC generally will have some incentives to attempt access discrimination if it is selling unregulated services that compete with those offered by firms that depend on its regulated inputs. And unfortunately the more stringent is price regulation of the firm's bottleneck inputs, i.e., the more "successful" is price regulation, the stronger is the incentive to attempt access discrimination.

117. Second, § 272's requirement that a BOC sell its long-distance services only through a separate affiliate by itself does little to dilute a BOC's incentives to attempt access discrimination against the affiliate's competitors (e.g., IXCs)—because the affiliate's and parent's profits accrue to common shareholders. Regulators can dilute the common interests of a firm's different units by imposing further requirements, e.g., that managers be rewarded based only on the performance of their units, not of the overall firm; they also can attempt to block avenues of discrimination. But to eliminate *all* incentives and ability to favor affiliates would require eliminating all commonality of interest

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especially reluctant to allow price increases in these "monopoly" segments due to cost misallocation from the relatively competitive segments.

[43] The firm must compare this revenue loss with the increased profits from selling its unregulated services. For example, the tradeoff is worse when: (1) its services are poorer substitutes for those of rivals, because a smaller fraction of rivals' lost output and thus access revenue is offset by increased demand for the firm's own services; and (2) the firm's ability to expand sales of unregulated is constrained, by capacity limits or other factors.

(including via personnel rotation or central oversight) and sharing of resources. This would require not separate affiliates but separate firms.[44] Thus, as long as a BOC is subject to asymmetric price regulation, incentives will persist to attempt access discrimination for purposes of leverage.

118. Finally, it is worth stressing that motives of leverage into integrated services—once a BOC has secured interLATA entry and thus may offer also integrated services—would drive a BOC to reduce cooperation not only in providing access for long-distance services, but also for the host of new wholesale local services needed by integrated-services competitors and called for by the Act.

2. Protecting the core local market

a. Reduced cost of harming IXCs to delay their local entry

119. The major IXCs are among the most likely *large-scale* potential entrants into local markets. Through access discrimination, a BOC may be able to damage the IXCs' reputations in its region and reduce their customer base, thereby also delaying their entry into its local markets. Long-distance entry lowers a BOC's cost of pursuing access discrimination, because while the BOC loses access revenue due to reduced sales of IXCs, some of these reduced sales are now diverted to the BOC's affiliate instead of being lost altogether.[45]

b. Reduced incentives to cooperate with local entrants

120. Finally and importantly, a BOC's incentives to cooperate with local entrants would be inadequate even putting aside leverage motives into adjacent markets (as would be relevant if integrated services were unimportant, and if regulation could perfectly prevent access discrimination against IXCs). Like any dominant incumbent a BOC is inclined to resist entry, because dominance

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[44] As a matter of logic, it will be impossible to eliminate *all* potential avenues of discrimination without also vitiating economies of scope—in which case requiring separate firms would seem preferable to awkward regulatory quasi-separation within a firm. There is no perfect way out of this dilemma; the hope is to block the main avenues of harmful discrimination without unduly foreclosing efficiencies.

[45] This is the same as the logic underlying discrimination incentives for purposes of leveraging the price-regulated local access monopoly into higher long-distance prices (see B.1.b above). But the purpose here is not to raise price in long distance, rather, to delay entry by IXCs into the local market; hence the argument does not hinge on the BOC being able to offer unregulated long distance services or any other form of asymmetric regulation. Note that this was not an issue at divestiture, as local monopoly was protected by state franchises.

in providing even purely local services is profitable, notwithstanding regulation.[46] At the same time, the BOC could value entry authority into long distance; for example, its strong brand name locally and ability to realize cost savings through joint retailing functions could allow it to earn profits in long distance (section II.C). Therefore, to receive long-distance authority it would be willing to extend some cooperation to local entrants. Granting such authority before the local market is open, however, will prematurely reduce the BOC's incentives to continue cooperating in opening its market.

C. Artificial Cost Advantage in Competing for Long-Distance Services

121. Among the concerns voiced by major IXCs is that a BOC would have artificial cost advantages in competing for long-distance business because their access prices to IXCs are well above cost.[47] The IXCs are right that even if imputation rules required a BOC to charge its affiliate the same access price as it charges IXCs, an affiliate would treat such a price as merely an internal transfer, and would try to base its retail prices on the true cost of obtaining access.[48] A BOC's

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[46] This requires only that price regulation not be capable of reducing prices perfectly to cost, hardly a stringent assumption. Perfect "global price-cap" regulation might in theory eliminate incentives to discriminate against competitors. See Jean-Jacques Laffont and Jean Tirole, "Creating Competition through Interconnection: Theory and Practice," February 1996, forthcoming in *Journal of Regulatory Economics*, and "Global Price Caps and the Regulation of Interconnection," July 1996. But in practice price caps are never pure, so allowing entry is likely to end up hurting the firm by ultimately contributing to the tightening of price caps. It is true that the incumbent's incentive to cooperate with output-market competitors may well be greater if it could sell to them the inputs they require at unregulated rather than regulated prices. But even then, the incentive is likely to be inadequate. Once competition is established, it limits the ability to extract profits from customers; it is highly unlikely—for reasons involving contracting problems or antitrust—that the incumbent could collect sufficient profit through overpricing of inputs to competitors initially to offset these lost future profits. Predictably, dominant incumbents often resist entry into their markets.

[47] Responses to Joel Klein letter by AT&T (p.21), MCI (pp. 9-10), Sprint (p.3), December 1996. The FCC's recent actions on access charges and price caps, while helping to bring down access charges, do not purport to bring them down to cost and in fact are likely to leave them well above costs for some time. Moreover, intrastate access charges, which now typically exceed interstate charges, will remain under the jurisdiction of state commissions and considerable uncertainty remains about their levels. Thus, the issue raised by the IXCs remains pertinent.

[48] The IXCs are implicitly assuming that imputation rules would not be capable of seriously constraining a BOC affiliate's retail prices. This assumption is probably realistic, given the difficulties of comparing the other relevant variables necessary to conduct an imputation test. (The test prohibits: $p \leq c + w + d$, where p is the affiliate's retail price, c the affiliate's cost of non-bottleneck inputs, w the input price to its rival, and d the firm's extra cost of providing the bottleneck inputs to the rival than to the affiliate. In practice, estimating c and d, can

affiliate would then be able to undercut IXCs' prices selectively to certain customers and capture such business even if it is inherently less efficient than IXCs.

122. The IXCs' argument is correct as far as it goes. But it overlooks the fact that selective discounts by a BOC could well increase total long-distance output and benefit consumers. One must be clear about the alternatives being compared. Assuming that access charges by BOCs to IXCs would be no higher if BOC entry is authorized than if it is not, an assumption discussed below, a BOC's ability to offer selective discounts should increase total long-distance output and benefit long-distance consumers, as compared with barring BOC entry. (This assumes that BOC entry does not induce IXCs to exit the market as a result of being unable to profitably operate at a reduced scale; if exit does occur, a BOC may be able to raise price.) The basic reason is that IXCs' cost has not increased—because by assumption access prices are no higher—but a new competitor (the BOC) enjoys lower cost of serving the long-distance market (albeit artificially lower, because it charges to IXCs access prices well above its own incremental cost of providing access, while basing its own retail pricing behavior on the latter).[49]

123. The assumption that regulation will prevent a BOC from subsequently raising access prices to IXCs (or failing to lower them as much as would otherwise have occurred) is important, however. In particular, there are dangers of regulating access pricing by including in a common basket both access services "sold" to the BOC's affiliate and to IXCs and subjecting the basket to an overall price cap. By lowering the price to its affiliate a BOC would then be allowed to raise prices to IXCs while adhering to the cap; the BOC gains, of course, since the additional profits earned by its affiliate are unregulated. Thus, a BOC will have strong incentives to try and give its affiliate preferential discounts, in order to justify raising the access prices charged to IXCs.

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be especially problematic; even agreeing on the relevant services to be used when comparing w and p can be contentious.) Moreover, there is a general question about the wisdom of zealously enforcing any price floors. Such policies can easily stray from protecting competition to protecting competitors.

[49] Observe that the concern is not with the BOC raising the access price or engaging in access discrimination against IXCs, but with reducing its retail price given that access to IXCs is priced above cost.

124. The Act and current regulation prohibit such discrimination in access pricing. However, a BOC may plead "nondiscrimination" by designing discounted offers that are nominally available to all but are targeted to its affiliate. It can make discounts conditional on terms that (a) are alleged to provide cost savings and (b) are contrived such that the affiliate is more likely to accept, for example, a buyer's agreeing to make very long-term purchase commitments.[50] The scope for such gamesmanship can be reduced by having separate price caps for access services sold to competitors and to affiliates. And in general, if competitively significant "nondiscriminatory" discounted offers are disproportionately accepted by affiliates, some scrutiny may be warranted of whether discounts reflect genuine cost savings.[51]

125. In sum, I would be reluctant to advocate delaying a BOC's interLATA entry solely on the grounds that its access prices to IXCs are currently well above its incremental cost—as long as the BOC can adequately be prevented from raising access prices to IXCs post entry.[52] It is certainly true, however, that the best course is to reduce access charges closer to cost. Assuming that (non-price) access discrimination could be prevented, reducing access prices would both expand downstream output and prevent distortion of competition.

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[50] Of course, discounts for long-term commitments can reflect legitimate business reasons. In the guise of such reasons, however, one also could contrive contracts of such long duration and such stringent terms for breach that only an affiliate would feel comfortable accepting. An affiliate would realize that if changed circumstances made it efficient to breach its commitment, it would be allowed to do so (in the interest of maximizing overall firm profit) far more readily than would an outsider such as an IXC. A BOC also might try to rationalize discounts based on the *percentage* of a long-distance carrier's minutes committed to the BOC. An IXC might value the option of flexibility, such as splitting its minutes between a BOC and a CAP (especially if CAPs continue to expand), while a BOC's affiliate would far more readily accept exclusivity with the parent.

[51] Unfortunately, it is not easy to police against true price discrimination when buyers require significantly different arrangements, leading to potentially different costs of service. See, for example, Marius Schwartz, "The Perverse Effects of the Robinson-Patman Act," *Antitrust Bulletin*, 31 (Fall 1986), 733-757.

[52] Authorizing BOC entry, of course, does not foreclose subsequent antitrust action if price squeezes are deemed to be anticompetitive.

IV. The Ability of Regulatory Safeguards to Negate Concerns Raised by BOC Entry

126. Based on the preceding analysis, the main potential competitive concerns raised by BOC entry are access discrimination against long-distance carriers and, especially, the withholding of cooperation in implementing and pricing appropriately the various new wholesale local services. How serious these potential concerns in fact are depends on how effectively and expeditiously they can be addressed by regulatory and other safeguards. Section A below discusses generic shortcomings of regulation, showing by implication that there is real value to having a BOC be more disposed to cooperate than having to rely exclusively on forcing its cooperation. Nevertheless, while never perfect, regulatory and other safeguards are far more adept at preventing degradation of established access arrangements than at forcing implementation of new arrangements; this difference has key implications for the design of a pro-competitive standard for BOC entry (see section V). Sections B and C document this difference drawing on past experience with LEC behavior.

A. Generic Shortcomings of Regulation, and Existing vs. New Arrangements

127. Regulation faces several inherent shortcomings in trying to curb a firm's incentives to discriminate against competitors, which caution us against relying on it exclusively.[53]

1. Generic shortcomings of regulation

128. *Detecting abuses.* In order to be effective, regulators must be able to detect a violation. This requires knowing, among other things, what the firm actually did (not what it claims) and often what alternatives it could have pursued. Outsiders such as regulators, courts, and even competitors possess vastly inferior information than the firm about its business environment and conduct. And while a regulator can learn a great deal by consulting with interested industry parties, to eliminate the informational disadvantage entirely the regulator would have to become the firm.

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[53] For good discussions of the limitations of state and FCC regulation prior to the 1996 Act, see the December 1994 Declarations of Nina W. Cornell (focusing on state regulation, especially pp. 35-63) ("Cornell, 1994") and of Daniel Kelley (FCC regulation, especially pp. 37-75) opposing the motion by four BOCs to vacate the MFJ. *United States of America v. Western Electric Company, Inc. and American Telephone and Telegraph Company*, United States District Court for the District of Columbia, Civil Action No. 82-0192.

129. *Proving abuses*. Detecting a violation is not the same as being able to prove it. Regulated firms enjoy—for good reasons—procedural safeguards including the right, which they often exercise, to challenge regulatory decisions in court. A non-specialist court is likely to be less informed about conditions in the industry than is a regulator, and the adversarial court proceedings offer the better-informed firm ample opportunity to raise various objections. Thus, even if a regulator is convinced there is a violation, proving it to the standard needed to take corrective action may be too costly or simply not feasible.

130. The issue of proof is important. The BOCs have repeatedly argued that preventing discrimination is easy because a service difference great enough to influence the behavior of customers assuredly would be detected by competitors and by regulators. However, simply showing such a difference is not sufficient to prove a BOC has discriminated, especially with new or customized arrangements—there could be "innocent" explanations with a sufficient ring of plausibility (different circumstances of transactions, events beyond the firm's control, etc.). Indeed, a major advantage of competition over regulation in taming market power is that a competitor is not constrained by the same rules as a regulator: if a competitor believes the incumbent's price is excessive or its service is inferior it can simply offer customers better options—without having to prove to anyone that the firm is misbehaving.

131. *Deterring abuses*. Effective deterrence requires the expected penalty to exceed the expected gain from engaging in an abuse. The requisite penalty may have to be large given (a) the potentially large gains to a firm and (b) the limited chance that a violation will be detected and proved, hence that the penalty will be imposed. Regulators may not always have the legal rights or the political ability to impose penalties large enough to achieve meaningful deterrence. Imposing high penalties is especially problematic when violations are not demonstrably blatant, as is likely with new (as opposed to established) access arrangements.

132. *Correcting abuses*. Since deterrence will not be perfect, a regulator also must be able to rectify the effects of abuses quickly and effectively. But the damage to a competitor imposed, for example, by technical discrimination can be difficult to reverse: discrimination may have allowed the regulated firm to beat the rival to market with a new product. This first-mover advantage could have

a durable impact, for example, if consumers would have to incur significant switching costs should they wish to move to the entrant. (For this reason, the Act tries to minimize these costs through such means as requiring number portability.)

133. *Cost-effective regulation.* Finally, regulation would have to accomplish the above tasks in a cost-effective manner. It does little good to prevent abuses if doing so means intruding into the firm's decisions to a suffocating degree, or expending vast resources on regulation. As a practical matter, the resources made available to regulators may limit their ability to engage even in the efficient degree of oversight. The FCC and state commissions are operating under tight budgetary and personnel constraints that may not be commensurate with their responsibilities: the new Act has vastly increased the FCC's duties, and state commissions must grapple also with the rapidly changing electric utility industry.

2. Existing vs. new arrangements

134. Assuring equal access to BOC local networks—for both long-distance carriers and local competitors—in the face of reduced BOC incentives to cooperate requires policing against sins of *commission* and *omission*: a BOC might attempt to reduce cooperation from existing levels by degrading existing access arrangements, or fail to provide a greater level of cooperation as it should in establishing new arrangements.

135. It is difficult for regulators to eliminate entirely even sins of commission—the degradation of existing arrangements.[54] Nevertheless, once arrangements are in place and there is some track record against which to benchmark "good behavior," preventing access discrimination becomes much more manageable.

136. Conversely, enforcing the implementation of new arrangements is much harder. It is particularly difficult to prevent such sins of omission, since there are no good historical benchmarks to guide what is feasible for the firm. Implementing the new Act's local-competition requirements

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[54] For example, requiring a BOC to meet "objective" performance measures such as average provisioning intervals is not a perfect safeguard. A BOC could discriminate while showing identical average intervals for its affiliates and outsiders, because the same average can conceal important variations: when it is very important for an IXC to get rapid service the BOC can delay it, while meeting the overall average requirement by providing expeditious service when the IXC least needs it.

of interconnection, unbundling and resale will require dramatic and wide ranging changes in the way a LEC does business. For example, loop unbundling will require physical (not just electronic) changes. And new electronic interfaces will be needed to coordinate ordering, billing and other functions for carriers that resell a BOC's local service. With reduced incentives to cooperate once allowed into long distance, a BOC could delay such arrangements considerably. It may initially refuse to provide a new arrangement, citing prohibitive costs; then relent and "merely" delay or give priority to requests from its affiliate to place it at a competitive advantage. The point is not that such excuses are never true, but that it will be difficult for regulators to discern which are true and which are not.

B. Enforcing Existing Access Arrangements

137. By and large, the U.S. experience with participation by regulated LECs in long-distance markets suggests that once access arrangements for competitors are established, subsequent problems become much more manageable. To cite a recent example, IXCs have made substantial inroads competing for intraLATA toll services in states such as Minnesota and Alaska that had implemented intraLATA dialing parity prior to the 1996 Act. I am not aware of backsliding by LECs on providing such dialing parity.

138. It is of course possible that we have yet to see the full arsenal of incumbent responses; intraLATA dialing parity is a recent phenomenon and incumbents may still be mulling their options. However, certain LECs such as Rochester Telephone (which is part of Frontier), United (which is part of Sprint) and Lincoln Telephone were not subject to the MFJ and have offered long-distance (interLATA) services in competition with IXCs for some time. I understand that IXCs have made few complaints against these LECs about degradation of existing access arrangements.

139. More recently, Sprint has owned Centel in Nevada since 1992, yet IXCs have made no significant complaints to Nevada regulators. Southern New England Telephone Company (SNET) has begun offering interLATA service jointly with its local service; so has GTE since the passage of the Act (which ended the consent decree that prevented GTE's local operating companies from jointly marketing long-distance services). GTE and SNET have been very successful in capturing long-distance business, but neither has elicited serious complaints concerning their degradation of existing long-distance access arrangements for IXCs.

140. In short the scope for a BOC, after allowed interLATA entry, to degrade existing access arrangements used by IXCs is relatively limited in the short run. Most importantly, regulatory and antitrust safeguards can do a far better job of enforcing such existing access arrangements given the long track record of experience with them. In addition, a BOC would face some technical difficulties today in finely targeting for discrimination only pieces of the network that serve IXCs or their customers. Finally, some of the markets which the BOCs are said to target if allowed interLATA entry, low- to medium-volume residential and business customers, are also ones where IXCs require relatively simpler access arrangements.[55]

C. Implementing New Access Arrangements

1. IntraLATA toll dialing parity

141. The main long-distance markets in which the BOCs have participated since the MFJ are those for intrastate, intraLATA toll services. Dialing parity—the ability to reach a carrier other than the LEC without dialing additional digits—is very important to subscribers who must dial manually, such as most residential subscribers and small businesses lacking a PBX. Indeed, LECs consistently opposed dialing parity on the grounds that implementing it would cause them to lose massive amounts of traffic. Until a few years ago, no BOC provided dialing parity anywhere. Often regulators did not seek to enforce dialing parity (partly on grounds of protecting this LEC revenue in order to support cross-subsidies of other services such as basic residential access and most services in rural areas). But even where they did, incumbents successfully delayed the process through protracted appeals.

142. The case of Minnesota is instructive.[56] The Public Utilities Commission (PUC) determined in October 1985 that dialing parity to IXCs for intraLATA toll calls (through "1+ presubscription")

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[55] About 80% of LECs' interstate access revenues comes from switched traffic (Table 1, note 6), where access arrangements are largely standardized. Dedicated access is used mainly by large customers, and competition from CAPs and CLECs is developing faster for such dedicated arrangements. However, if local competition fails to develop for broader segments of the market, the BOCs if allowed into long-distance could pose a growing threat to access arrangements used by IXCs: new arrangements will become increasingly necessary, and local networks might be re-configured to permit more subtle forms of access discrimination.

[56] The ensuing discussion draws on Cornell (1994), and on interviews conducted by the Department of Justice. My purpose here is not to single out the Minnesota Public Utilities Commission or the incumbent BOC, U S West, but to illustrate generic problems.

was in the public interest, and in November 1987 created a committee to develop an implementation schedule and a means of paying the costs of presubscription. U S West, the incumbent BOC, asked the PUC to reconsider its public interest finding, but was denied in January 1988. In June 1989 the study committee filed a report stating that presubscription could be done and proposing a method of implementation and funding.

143. In September, 1992, U S West again petitioned the PUC essentially to reconsider its decision that presubscription was in the public interest. The PUC denied the request but reconvened the study committee, having decided that the earlier report might be outdated. The committee submitted an updated report in August, 1993. In July, 1994, the PUC set implementation guidelines for intraLATA equal access by incumbent LECs not already providing it. After further unsuccessful efforts by U S West to challenge the PUC's order in court, intraLATA presubscription was finally implemented in February 1996—over a decade after the PUC had determined that it was in the public interest.

144 This episode, and others like it, are all the more striking given that claims challenging the technical feasibility of dialing parity had long been refuted. In exchanges serving most traffic in Alaska dialing parity was implemented in 1991-92. GTE implemented a comparable capability for itself in Hawaii in 1986; but only in July 1996 did the Hawaii PUC compel it to provide intraLATA dialing parity to others. Thus, technological uncertainty is not the sole problem; incumbents have considerable ability to stall the process through regulatory and legal challenges.[57]

2. "Open Network Architecture"

145. One of the toughest challenges to meeting the new Act's local competition requirements will be in assuring competitors access to unbundled network elements. The FCC's experience with attempting to implement Open Network Architecture (ONA), while different in some respects, nevertheless is instructive.[58]

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[57] The BOCs continue to resist intraLATA dialing parity today. For example, in states such as Michigan and Wisconsin where commissions have ordered such parity, Ameritech has mounted numerous regulatory and legal challenges. Technical barriers are sometimes cited; however, Michigan regulators found that 82% of Ameritech switches could be converted immediately, while the remaining ones would require only some software development.

[58] A summary of the main episodes in the history of ONA and the relevant references can be found in the decision *California v. FCC*, 39 F.3d, 919 (9th Cir. 1994).

146. The FCC's *Computer II* rules (1980) allowed BOCs to offer unregulated enhanced services (such as computerized data processing that also require access to telephone networks) only through separate subsidiaries, in part to help prevent access discrimination to telephone networks against competing enhanced service providers. Ameritech proposed an early version of ONA partly as a substitute safeguard against discrimination: by offering access to disaggregated network elements which enhanced service providers could use flexibly, ONA would reduce a BOC's ability to discriminate. Other BOCs similarly argued that ONA would void the need for the structural separation required by *Computer II*. The FCC concurred: in *Computer III* (1986), it ordered the BOCs to develop plans for ONA and determined that ONA requirements would be "self-enforcing in controlling discrimination."

147. Backsliding from initial ONA promises began almost immediately, though much of this was not conscious discrimination but inevitable in view of the unrealistic expectations initially touted for ONA. And major, protracted controversy ensued over whether the BOCs had actually implemented the reduced version of ONA that they did promise. The FCC, while acknowledging that ONA had not been fully implemented, ruled the BOCs had nevertheless done enough to justify lifting the separate subsidiary requirement. The Ninth Circuit (1994) strongly disagreed, finding that the FCC had failed to explain how these scaled back safeguards, that fell well short of the "fundamental unbundling" originally envisioned in *Computer III*, would suffice to prevent discrimination.

148. There are important differences between the network unbundling envisioned in ONA and that required by the 1996 Act. We have a much clearer idea today of the services local competitors might provide and their requirements than we did then for enhanced service providers. And the technological advances needed for ONA were more pathbreaking than the measures required to implement the Act's unbundling requirements (as spelled out in the FCC's Local Competition Order). Still, ONA offers important lessons: backsliding from initial promises, whether deliberate or not, is likely; and so are disputes over the details of what has—and has not—been implemented. These lessons highlight the dangers of relying on "paper implementation" of new requirements and, to avoid protracted regulatory and legal skirmishes, the importance of authorizing a BOC's interLATA entry

only after there is enough confidence that it has indeed implemented key local competition requirements.

V. Principles for a Procompetitive Entry Standard

149. At the risk of oversimplification, the stylized pattern emerging from section IV is that once access arrangements are in place and there is a track record against which to benchmark "good behavior," the task of preventing access discrimination becomes much more manageable. It is very difficult, however, to impose new arrangements against the firm's will. These considerations, and the earlier analysis of the potential benefits from BOC entry, lead me to the following principles for a procompetitive BOC entry standard

A. Fully Effective Local Competition Is Not a Prerequisite

150 Withholding BOC entry authority until there is sufficient local competition to eliminate a BOC's market power would not be appropriate on economic grounds. Even if barring the BOCs from long distance was justified at divestiture in order to promote the nascent long-distance competition, such competition could be protected today while allowing BOC entry well before there is effective local competition.

151. There are now several major established long-distance carriers. Regulators today are more attuned to risks of discrimination and, importantly, long-distance access arrangements are well established. The new Act prohibits many discriminatory practices that were not specifically prohibited pre-divestiture. In addition and importantly, the Act provides for opening of the local market which over time should yield additional safeguards for long-distance competition, both by providing direct alternatives, and by offering benchmarks to assist regulators in regulating BOC conduct.

152. Moreover, the development of local competition—a central goal of the Act—can itself be accelerated by authorizing BOC entry before there is effective local competition, *provided* that such authority is appropriately conditioned on prior BOC cooperation with local entrants. Local competition will develop sooner if the BOCs cooperate, and the BOCs should be more willing to cooperate if in so doing they secure earlier entry into long distance. This logic, I believe, is integral to the particular sequencing adopted in § 271.

153. Finally, as noted earlier, BOC entry has the potential to yield significant benefits in provision of integrated services and increased long-distance competition. Since the potential costs can be mitigated through regulatory, antitrust and other safeguards once the market is open and benchmarks are in place, coupled with some local competition, the value of attaining earlier the benefits of BOC entry reinforces the case for approving such entry well before effective local competition is in place.

B. The Local Market Must Be Irreversibly Open to Competition

154. While section IV showed that regulators can do a reasonable job of preserving established arrangements, it also raised significant doubts about their ability to expeditiously enforce new arrangements in the face of BOC resistance. This is particularly an issue for the new local-competition arrangements required by the Act, many of which entail radical departures from past practice. Given the pivotal role of these arrangements in laying the foundation for local competition as envisioned in the Act, and that local competition holds the key to achieving the Act's goals, I believe that BOC entry should be authorized only once there is sufficient confidence that the BOC's local market has been irreversibly opened to competition through all three entry modes contemplated by the Act. Several steps, discussed next, lead to this conclusion.

1. BOC incentives to cooperate can make a great difference

155. The BOCs themselves seem quite aware of their latitude, within the regulatory and legislative constraints, to affect the pace and efficacy of the process to open up local markets to competition. The importance of BOC cooperation is illustrated by contrasting the experiences of intraLATA toll versus interLATA markets. BOCs successfully delayed implementation of dialing parity for intraLATA toll markets, where they were allowed to compete. In contrast, establishing the physical and administrative arrangements for equal access to IXCs after divestiture was a considerable achievement for the industry; and it was made possible in large part by BOCs' willingness to cooperate given that they were barred from directly participating in long distance and thus had strong interests in ensuring efficient operation of the exchange access business.

2. Importance of securing BOC cooperation before authorizing entry

156. As explained previously, relying on penalty threats to force implementation of new systems is problematic, because enforcers will have far less information than the BOC about how long the

process should take. Providing a BOC with incentives to act faster—by authorizing its entry only once sufficient implementation has occurred—will accomplish the process more quickly and more efficiently. Once these main new technical and organizational access arrangements for local competition are in place and shown to be working, they can establish performance benchmarks to assist enforcers in preventing future backsliding. That is, pre-entry implementation of the new systems makes regulatory and other safeguards considerably more effective and less burdensome.

157. On the other hand, once entry is authorized, BOC incentives to continue cooperating will diminish significantly. As a practical matter, rescinding a BOC's long-distance authority would be difficult and, in any event, would be disruptive. While freezing a BOC's future marketing authority would be a more practical option, it also is less potent. Faced with a loss of an important incentive mechanism—the § 271 entry authority—BOC cooperation would have to be induced by threatening penalties which, as noted, are less effective when the issue is implementation of new measures. Thus, it is important to grant BOC entry only after sufficient cooperation has first been secured.

3. The benefits from delayed BOC entry outweigh the costs

158. The Department of Justice's standard would involve some delay in BOC entry relative to adopting an "early" entry standard that required only checklist compliance on paper. This will impose non-trivial costs, by temporarily depriving consumers of increased availability of integrated services, as well as increased competition in long-distance services (see section II). But the costs of delay are outweighed by the prospective benefits.

a. Local versus long-distance markets

159. A BOC's local markets are about twice as large as its in-region long-distance markets. In addition, the local market is a regulated monopoly, with substantial room for improvement in performance. In contrast long-distance markets, though not perfectly competitive, exhibit considerable rivalry and are becoming more competitive even without BOC entry. The gains from injecting even a modest dose of local competition can thus easily outweigh those from adding one, albeit major, competitor into long-distance markets in a BOC's region. (Recall that BOCs already may offer long-distance service outside their regions.)

160. Aside from its inherent benefits, local competition can also help safeguard long-distance competition in the longer run. A BOC's entry into long distance is likely, over time, to pose a growing threat to the ability of IXCs to compete with it on an equal footing, or invite more intrusive regulation to prevent this, than if local competition emerged sooner. Finally, local competition holds the key to robust competition in offering integrated services—since the key monopolized pieces are local inputs and services.

b. Integrated services

161. *"Competitive parity."* The BOCs argue that any delay of their entry into long distance would give their competitors—especially the major IXCs—important and unfair first-mover advantages in competing to provide integrated services (such as offering one-stop shopping). In addition, and somewhat inconsistently, they argue that delaying BOC entry would deny consumers the benefits of these offerings which the BOCs—if allowed into long distance—would be *uniquely* positioned to provide. I address first the issue of competitive parity, then the more important questions of impact on consumers and on overall welfare.

162. In general, the competitive process works best when no artificial handicap is placed on competitors and all firms are allowed to compete on the merits. At first glance, delaying BOC entry while IXCs and others make inroads into local markets may seem to violate this principle of respecting competitive parity in offering integrated services. This, however, overlooks the fundamental asymmetry in the position of a BOC versus other players.

163. The BOC is the sole major source of local services in its region. In contrast, there are several national and many regional facilities-based providers of long-distance services. If reciprocal entry is allowed concurrently—that is, if BOC entry into long distance is allowed immediately—the BOCs will have a major and artificial advantage in offering integrated services. They will be able to obtain long-distance services rapidly, seamlessly, and at prices very close to cost—because of the vigorous competition among IXCs vying to sell such services to a large wholesale customer as the BOC. In contrast, other would-be providers of integrated services have only one major source for local services the BOC. Once allowed into long distance, a BOC would have strong incentives to deny to others the various wholesale local services they need to offer integrated services. Potential

competitors would have to wrangle with this sole provider for every new access arrangement or discount. Regulatory and antitrust intervention can certainly help, but it cannot in a cost-effective manner eliminate entirely the disadvantage resulting from the absence of local competition; if it could, we would rely on regulation and not insist on competition.

164. Moving towards parity in competition for integrated services therefore calls for insisting that the BOCs first take substantial measures to open up their local markets—even if by doing so they expose themselves to some entry—because once they are allowed into long distance they can rapidly make up any advantage the IXCs might have temporarily gained.[59]

165. *Effect on consumers.* More important than the effect on competitive parity for its own sake, is the effect delayed BOC entry has on consumers of integrated services and on overall welfare. Delaying BOC entry would delay delivering the benefits of integrated services to consumers through the BOC. However, integrated services will be available to some extent from non-BOC sources. Competitors other than the largest three IXCs could attempt to obtain BOC local services for total service resale. And all competitors could attempt to provide their own local services through facilities-based entry or through use of unbundled local elements leased from the BOC.[60]

166. Admittedly, competitors are unlikely to obtain such local inputs or services as efficiently and expeditiously as the BOC would have offered its own long-distance affiliate. It will take time and regulatory pressure to implement the necessary new arrangements for supplying competitors with

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[59] The structure of the Act reflects a desire to prevent either the BOCs or the IXCs from gaining a substantial "first mover" advantage in offering packages of local and long-distance services, and does so by attempting to deny either one a significant head start. Thus, § 271 requires the opening of the local market to competition—for both resale and unbundled element competition—before BOCs may enter the long-distance market. Similarly, § 271(e) prohibits large IXCs from jointly marketing resold local services in a state prior to the BOC's long-distance entry and, except where already required by a state, limits the implementation of intraLATA toll dialing parity prior to the BOC's entry. Finally, the Act requires the FCC to act on § 271 applications within 90 days, a requirement that ensures that BOC entry will occur promptly after—but not before—all prerequisites for such entry have been satisfied. I believe these requirements are consistent with the above reasoning.

[60] Although the Act prohibits the three largest IXCs from jointly marketing long-distance services with local services obtained from the BOC for total service resale, until BOC interLATA entry is authorized (or until February 1999), it allows joint marketing of local services provided via one's own facilities or via unbundled BOC elements.

wholesale local services. Quite aside from BOC reluctance, there may be genuine transaction costs in making local inputs available to others as smoothly as to one's own affiliate; transaction costs often explain why in many settings firms prefer vertical integration over arm's length contracting with others. Thus, the local components of integrated services available from non-BOC suppliers are likely to be inferior to or not available as promptly as those that would be available from a BOC if it were immediately allowed to offer long-distance and thus integrated services. This inferiority will show up in the price or quality of the integrated services offered to consumers by non-BOC providers.

167. However—and this is the rub—the BOC will more willingly supply to others its local services or inputs and on better terms if it is barred from long-distance and thus integrated services. As explained earlier, a BOC's incentives to promote such wholesale products increases if it is barred from selling, especially at unregulated prices, competing retail services.

168. In short, barring a BOC from long distance creates a tradeoff regarding integrated services. No other competitor is likely to have as good a set of local services as quickly as would a BOC if allowed immediate interLATA entry. But while a BOC is barred from offering retail integrated services, it has incentives to supply others with wholesale local services on better terms than after it secures interLATA entry. This availability of "better" local inputs to a broader set of players is valuable; additional players bring greater variety and other benefits (improved customer service, more experimentation with new pricing plans, and other creative offerings). The net effect of earlier BOC entry on market performance in delivering integrated services is thus theoretically ambiguous in the short run. In the long run, competition in integrated services is likely to be far more robust and performance thus superior if strong local competition emerges. That goal is better advanced by authorizing BOC entry only after the conditions of the Department's standards have been met.

169. For all these reasons, accepting a modest delay in BOC entry to comply with the Department's standard is a worthwhile price. BOC cooperation in implementing the § 271 competitive checklist requirements would go a long way towards laying the foundation for healthy local competition. And securing such cooperation is far more likely by making it a prerequisite for BOC interLATA entry. Accepting a modest delay of BOC entry does not foreclose future options; but once entry authority is granted, we may have lost an important tool for opening the local market.

C. Local Competition as Evidence of an Open Market

170. Seeing significant and diverse local competition take root provides by far the best evidence that the market indeed has been irreversibly opened to competition. On the other hand, even with an open market, local competition may still be delayed for other reasons.[61] In particular, we should not expect to see all forms of local competition in all locations, and certainly not right away; indeed, the guiding philosophy of the Act is that market forces should be allowed to dictate what works and what doesn't, once artificial barriers have been removed. For example, if we are successful in ensuring that incumbents make available unbundled network elements at prices reasonably close to incremental cost and if such arrangements work smoothly, then it would be wasteful to insist that entrants build entirely their own facilities.

171. Balancing these two considerations, I see the role of observing local competition as establishing presumptions: if sufficient competition is observed, the market is presumed open. If not, one should ask why not; the BOC would face a heavier burden to demonstrate that the market is truly open and that the absence of actual competition was not for lack of BOC cooperation in opening up its networks to competitors.

172. The best proof is in the pudding: the emergence of local competition provides by far the best evidence and assurance that the local market indeed has been irreversibly opened. Observing local competition is helpful for several reasons.

173. *Checklist implementation.* Seeing some actual competition is the most convincing demonstration of meaningful checklist implementation. Without seeing new access arrangements in use by competitors, there will be lingering doubt as to whether these arrangements are truly adequate or whether their pricing is appropriate to make entry by efficient competitors feasible.

174. *Signal of entrants' confidence.* Competitors' willingness to commit significant irreversible investments to the market (sunk costs) signals their perception that the requisite cooperation from incumbents has been secured or that any future difficulties are manageable. Since competitors are

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[61] For instance, some potential entrants are re-evaluating plans to build their own loops and waiting for technological advances that would allow broad-band delivery capability and let them offer not only telephone service but also video and data services.

knowledgeable about the industry and have an obvious stake in making competition work, their actions speak loudly.[62] Indeed, firm plans to commit substantial investments to the market could be a better indicator than observing a more limited amount of competition already in place. (It is important, however, that the plans be firm, e.g., involving contracts for specialized equipment that entail substantial penalty clauses for cancellation. There is a long record of plans to enter local phone service that have been perennially revised, such as by the cable companies to cite one example.)

175. *Entrants' direct role in safeguarding competition.* Quite aside from signaling confidence that local competition can be successful, the presence of competitors can directly help to prevent backsliding on cooperation by incumbents. The presence of competitors can provide regulators with additional benchmarks of what is possible and at what cost, thereby helping regulators (or the courts) to better enforce incumbent cooperation. In addition, established competitors create an additional constituency with a stake in preventing backsliding by incumbents or regulators. Once established competitors are in place, they can help to limit discrimination by acting as whistle blowers.

176. In all cases, of course, the more widespread is the local competition geographically, in the types of services offered, and in the range of access services used from the incumbent, the greater is our degree of confidence that the market has been opened.

177. *Resale versus other entry modes.* It is important to ensure that facilities-based entry options (including through unbundled elements) are truly made possible, as they have important potential advantages over total service resale. They can discipline an incumbent's behavior in more segments, not only on the retailing side but also in certain network functions; for example, entrants renting unbundled loops but bringing their own switches can help curb switch-based discrimination against long-distance carriers in securing local access, and can allow the introduction of new services based on the electronic features in the switch.

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[62] In general, it is instructive to observe the actions of parties that have a direct interest in the outcome, because they are likely to have better information than outsiders or find it in their incentives to obtain such information. This principle of "follow the money" has led economists to place substantial weight on how the stock market interprets various events.

178. In addition, entry using unbundled elements can often exert stronger downward pressure on retail prices than can entry through resale—partly due to the different pricing standards adopted in the Act: wholesale prices for total service resale are computed "top down," by starting with retail prices and subtracting only the avoided retailing costs; in contrast, unbundled elements are priced "bottom up," by starting with the estimated facility costs of these elements. Since retail prices for many services are well above the underlying costs of both retailing and network elements, subtracting only the estimated retailing costs to obtain wholesale prices for total service resale is likely to still leave these wholesale prices above the underlying costs of facilities.

D. Assessing Local-Market Openness in the Absence of Sufficient Competition

179. As mentioned, we do not expect to see all forms of competition everywhere. However, if sufficiently diverse competition is not observed, it is important to understand why. Before concluding that this is simply for lack of interest by entrants in pursuing certain entry modes in certain regions, it is important to ascertain that competition is not being stifled by artificial barriers. Indeed, absent a showing by the BOCs that lack of entry simply reflects a lack of interest, the presumption should be that the market is not open. Reversing this presumption requires verifying that the main elements of an open market indeed are in place. The main elements are discussed below.

1. Full, meaningful implementation of new access arrangements

180. Many of the access arrangements required by the Act for local competition are new. They raise a host of novel issues in technical areas (e.g., loop unbundling), business protocols (e.g., for switching customers from the incumbent to entrants under total service resale), and sharing operations support systems. A condition for finding the local market open, when sufficiently diverse local competition is not yet observed, should be that all such major systems and protocols (including but not limited to loop unbundling, electronic interfaces, operations support systems, access to signaling and databases) are readily available for commercial usage. They should provide regulators sufficient confidence that the conditions have been established to facilitate efficient entry through all three entry modes contemplated in the Act (facilities based, unbundled network elements, and resale), and for serving all major types of customers. And they should provide a sufficient track record of performance to give regulators reliable benchmarks for gauging and enforcing future cooperation.

181. Moreover, the scale of operations is critical. Systems that stringently cap the rate at which the incumbent's customers can switch to competitors, for example, by processing orders manually or having only a few and perennially busy fax machines, are a sure way to stifle competition. In order not to significantly impede competitors' ability to expand, the above systems should also be capable of being scaled up relatively quickly to accommodate reasonably foreseeable expansion demanded by entrants in a given geographic region (e.g., the ability to rapidly switch over to the entrant a large number of customers, through loop unbundling or total service resale), and capable of being rapidly extended to regions where they are not initially implemented. In addition, a BOC must have implemented number portability and local dialing parity.

182 These new access arrangements must be proven to work in practice. Many of the arrangements called for by the Act (such as loop unbundling) are unprecedented. Implementing such radical new arrangements often proves more difficult than expected even where there is goodwill on both sides.[63] These difficulties increase by an order of magnitude, however, when one side is recalcitrant, there is then endless scope for acrimony and mutual finger pointing, creating a regulatory morass. It is therefore important to have some practical experience with these arrangements, under real-world business conditions and not just in the laboratory, and iron out the major kinks while incumbents are still relatively predisposed to cooperate. The absence of (non-trivial) competition calls for waiting longer to test the new access arrangements, because experience with them under competitive conditions could help pinpoint potential problems more quickly. One should conclude that the market is open only if there is sufficient confidence that the major implementation problems have been resolved.[64]

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[63] For example, I learned from Bell Atlantic in July 1996 that it had been working with MFS in Baltimore since February 1995 to implement loop unbundling and had encountered considerable difficulties despite both parties' attempts to work cooperatively.

[64] Indeed, the arbitration process has not addressed all the relevant issues. (1) Many states have yet to establish performance standards and in certain cases have been reluctant to involve themselves at all in private negotiations on such matters despite appeals by entrants to do so. (2) Some states have determined that certain issues (such as liquidated damages), were outside their jurisdictional boundaries, wholly precluding their consideration in arbitration. Thus, insistence on appropriate performance benchmarks through the § 271 process can usefully complement state efforts.

2. Cost-based pricing of new local-competition access arrangements

183. "Availability" of the above access arrangements will be illusory if prices are prohibitively high. Thus, interconnection agreements forming the basis for § 271 entry authority under Track A, or interconnection offers under Track B, should provide entrants with satisfactory pricing assurances. Prices should be reasonably close to cost, as stipulated in the Act. And competitors must have adequate assurance that prices will remain reasonable and cost-based after interLATA relief is granted, in order to make efficient entry viable. Thus, if interim prices are used in the BOC's agreements or offers, there should be some assurance that after interLATA entry is authorized the BOC's prices to local competitors will remain within a tolerable range of these interim levels (e g., indexed to inflation plus or minus a modest deviation) for a sufficient duration.

184. Even entrants building their own networks will require reasonable prices for terminating their calls on the incumbent's network; assuring such prices is thus critical to the development of facilities-based local competition. Reasonable prices also are necessary for unbundled network elements if, as Congress intended, we are to facilitate also partial facilities-based competition; it would be tremendously costly, slow, and often inefficient for entrants to duplicate the incumbent's entire local network, especially its local loop. Finally, reasonably-priced local service for total service resale is needed in order to provide other carriers a meaningful opportunity to compete quickly and widely in providing integrated services.

185. *Pricing standards.* Section 252 (d) of the Act requires state commissions to use the following pricing standards in arbitrating disputes between incumbents and local competitors: (1) prices of interconnection and unbundled network elements should be based on each party's cost of providing these items; (2) prices of transport and termination of local calls should provide for mutual and reciprocal recovery by each carrier of (a reasonable approximation of) the additional costs of terminating such calls; and (3) wholesale prices should be based on retail prices for these services minus the marketing, billing and other costs that will be avoided by the LEC by selling at wholesale versus at retail.

186. The FCC in its Local Competition Order, while acknowledging that responsibility for arbitrating specific price levels rests with state commissions, proposed a methodology for arriving at

prices: (1) for interconnection and unbundled elements, use forward looking Total Element Long-Run Incremental Cost (TELRIC); and (2) for transport and termination, require symmetric prices based on the incumbent LEC's TELRIC. It suggested proxy ranges for these prices, and for wholesale discounts for total service resale, that a state commissions could use pending completion of its own cost study. These pricing rules and interim proxies were generally praised by competitors, but have been stayed by the Eighth Circuit. Considerable uncertainty remains about the course of these key prices.

187. *Role of § 271 entry authority.* Denying BOC interLATA entry when local competition is seriously impeded by inappropriate BOC pricing of key local inputs can accelerate opening of the local market. Although state commissions are empowered to arbitrate pricing disputes between incumbents and competitors, awareness that the § 271 process will weigh seriously whether key inputs are priced in a manner that supports efficient local entry will usefully complement state efforts to enforce procompetitively low input prices by the BOC to competitors in order to open the local market. This point merits elaboration.

188. State arbitration of interconnection agreements does not occur in a political vacuum. Rather, prices emerging from arbitration are likely to reflect the demands and bargaining powers of the incumbent and its potential competitors. There is great asymmetry in these bargaining powers—since the dominant incumbent is content to preserve the status quo, while the entrant is clamoring for an agreement. By making procompetitive BOC prices to local competitors a requirement for finding the local market to be open one can help reduce the bargaining-power asymmetry, and thus reduce the BOC's prices—thereby complementing state efforts to foster local competition.

3. Removal of substantial regulatory and other barriers

189. Finally, in order to be confident that the local market is irreversibly open, one must ascertain that there remain no major state regulatory or other artificial barriers likely to significantly delay local competition. The Act requires removal of such barriers;[65] but there are gray areas. States have some

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[65] Section 253(a) states: "No State or local statute or regulation, or other State or local legal requirement, may prohibit or have the effect of prohibiting the ability of any entity to provide any interstate or intrastate telecommunications service." Section 253(d) empowers the FCC to preempt such barriers.

latitude to impose obligations under the rubric of protecting universal service; local authorities may manage public rights-of-way or require fair and reasonable compensation for their use. Although all such actions must be on a competitively neutral and nondiscriminatory basis, there is sure to be controversy over the precise meaning of these terms.[66] Thus, the timeliness and effectiveness of FCC preemption of such barriers is uncertain. In addition, the BOCs themselves may have latitude to engage in certain practices which, while not explicitly unlawful, may hinder competition.[67]

190. If such barriers are likely to seriously delay competitors' ability to avail themselves of new technical and pricing arrangements for access put in place with BOC cooperation, these arrangements could become obsolete. The value of BOC cooperation in establishing these arrangements will then decay; and securing BOC cooperation again in establishing new arrangements once these barriers have been removed but after BOC entry has been authorized will be far harder.[68]

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[66] For example, Texas has imposed certain "buildout" requirements on entrants, requiring them to provide service over at least a certain area which may hamper their ability to enter effectively; requests are pending with the FCC to preempt this and other provisions of the Texas statute. Numerous municipalities reportedly plan to impose fees on new telecommunications providers—but not on incumbents—for use of rights-of-way and local infrastructure. Bryan Gruley, "Disputed Call: Detroit Suburb Sparks Fight by Levying Fees on Telecom Concerns," Wall Street Journal, December 23, 1996. The FCC has decided not to challenge such fees in the case of Troy, Michigan.

[67] For example, some incumbent LECs are said to be signing exclusive access agreements with landlords of multi-unit buildings, housing a high density of customers. Such agreements could stifle the ability of entrants to compete, by denying them the opportunity to attain economies of density in a given area. A provision prohibiting such agreements was dropped from the Act; nevertheless, permitting such agreements can hinder competition.

[68] A concern is that a standard which links BOC entry to removal of regulatory barriers beyond its influence may discourage BOC cooperation, because cooperation may fail to yield a reward. There are several responses to this concern however. First, a BOC's ability to influence the regulatory process in a state should not be underestimated. Second, requiring an open market as a condition for BOC entry can help persuade states to do more to remove remaining barriers. Third, and most importantly, dismantling such barriers need not impose onerous delay; whereas authorizing BOC entry before the local market is open can seriously jeopardize prospects for opening it in the future. The reasons are twofold. (a) Such barriers may prevent commercial use by entrants of the BOCs wholesale inputs and prevent the BOC from demonstrating that their systems will work under actual usage. (b) As noted in the text, even if the systems would work today, these systems could require major changes if sufficient time elapses before entry. Thus, if entrants cannot avail themselves of these new systems for some time due to the presence of residual barriers, the initial BOC cooperation in establishing these new systems will have had only limited value; and securing future BOC cooperation in updating these systems once these barriers have been removed will be more difficult if BOC entry has already been authorized. As a practical matter, however, I believe that meaningful BOC implementation of the competitive checklist is likely to result in opening the local market in most cases.

E. Conclusion: The Department of Justice's Entry Standard Is Procompetitive

191. The major remaining bottleneck in telecommunications today, controlled by the BOCs in most regions, is local networks. These regulated local monopolies are an inefficient institution, whose replacement by a mix of local competition and lighter regulation can generate large net social benefits in local services, in integrated services, and in protecting and promoting competition in long-distance services while allowing BOC entry. This is the guiding philosophy of the 1996 Act.

192. Authorizing BOC entry when—and only when—the BOC's local market is open would go a long way to promoting local competition and achieving the goals of the Act. The Department of Justice's entry standard embodies this principle. It strikes a good balance between attempting to rapidly realize the benefits from BOC entry while properly addressing the competitive concerns, and therefore serves the public interest in competition.

I hereby swear, under penalty of perjury, that the foregoing is true to the best of my knowledge and belief.

Marius Schwartz

Subscribed and sworn before me this 15th day of May, 1997.

Notary Public
My Commission Expires March 31, 2001

Table 1: Telecommunications Revenues (1995) [1]

1. All LECs, and BOCs alone	(1) All LECs ($ billion)	(2) % of Total Telecom Revenues[2]	(3) BOCs ($ billion)	(4) % of Revenues of All LECs[2]
Local Revenues	**56.6**	**36.9%**	**43.0**	**76%**
Local Exchange Service [3]	45.0	29.3%	35.2	78%
Local Private Line	1.2	0.8%	0.9	75%
Miscellaneous Local Revenues [4]	10.4	6.8%	6.9	66%
Network Access Services [5]	**33.4**	**21.8%**	**22.5**	**67%**
Federal Subscriber Line Charges	7.0	4.6%	5.8	83%[6]
Access Charges paid by LD Carriers	26.4	17.2%	16.7	64%[6]
Toll Revenues	**12.8**	**8.3%**	**9.5**	**74%**
Switched Service (intraLATA toll)	10.1	6.6%	7.3	73%
Miscellaneous Toll Revenues [7]	2.7	1.7%	2.2	81%
Total All Reporting LECs	**102.8**	**67.0%**	**75.0**	
2. CAPs and CLECs	**0.6**	**0.4%**		
3. LD Carriers' Net Toll Revenues [8]	**50.0**	**32.6%**		
Total Telecommunications Revenues	**153.4**	**100.0%**		

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[1] Source: FCC, Telecommunication Relay Service (TRS) Fund Worksheet Data, December 1996. All data are for 1995. Abbreviations: LECs – Local Exchange Carriers; CAPs - Competitive Access Providers; CLECs - Competitive Local Exchange Carriers; BOCs – Bell Operating Companies; LD – Long Distance.

[2] Col. (2) is $ bn in Col. (1) ÷ $153.4 bn (Total Telecommunications Revenues). Col. (4) is Col. (3) as % of Col. (1).

[3] Includes primarily revenues from Basic Local Services (approx. $34 bn) and some vertical services.

[4] Includes primarily Directory Revenues (approx. $4 bn), Nonregulated Revenues (approx. $3.6 bn), and Carrier Billing and Collection Revenues (approx. $1 bn).

[5] Of which $8.9 bn is intrastate access, and $24.5 bn is interstate (including $7 bn in Federal Subscriber Line Charges). The FCC's Statistics of Communications Common Carriers 1995/96 (table 2.9) breaks down interstate access charges paid by LD carriers (i.e. not including SLC) into switched and dedicated access, with switched access accounting for 80%. No comparable breakdown is reported for intrastate access.

[6] This percentage is computed using data from the FCC's Statistics of Communications Common Carriers 1995/96 (table 2.9, lines 154 to 158), which reports the break-down of BOCs' Network Access Revenues in SLC and Access Charges paid by LD Carriers. TRS Fund Worksheet Data does not report such information.

[7] Includes $1.6 bn in Operator Service, Pay Telephone and Card Revenues, $.9 bn in Long Distance Private Line Service, and $.25 bn in All Other Long Distance Revenues.

[8] Total Gross Revenues of Long-Distance Carriers are $76.4 bn, of which $26.4 bn were paid in access charges to LECs. The $76.4 bn figure includes approx. $3.3 bn from intraLATA toll (AT&T estimate), and the rest is interLATA. Of the $76.4 bn, 93% accrued to IXCs, 5% to Toll Resellers and the rest to Operator Service Providers, Pre-Paid Calling Card Providers, Pay Telephone Providers and Others.

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EDUCATION

University of California, Los Angeles Ph D in Economics, September 1982
University of California, Los Angeles M A in Economics, March 1978
London School of Economics B Sc in Economics (1st Class Honors), August 1976

PROFESSIONAL EXPERIENCE

Georgetown University, Department of Economics

Professor, June 1993–present
Associate Professor, August 1987–May 1993
Assistant Professor, January 1983–July 1987 (part time in Fall 1982)

Director of Graduate Studies Spring 1993-Spring 1995

Undergraduate Courses Taught

Antitrust
Industrial Organization
International Economics
Macroeconomic Theory
Mergers & Corporate Control
Microeconomic Principles
Topics in Competition and Regulation

Graduate Courses Taught

Industrial Organization
Macroeconomic Theory I
Macroeconomic Theory II
Monetary Policy
Microeconomics special course in Pew Freedom Fellows Program

Council of Economic Advisers, Executive Office of the President

Senior Economist, June 1995–May 1996 (part-time consultant April & May 1995 and June 1996)

Served as the senior economist principally responsible for antitrust, regulated industries, and other industrial organization matters. Work included: 1996 Telecommunications Act; competition in international satellite services; competition in the electric utility industry; reforming the patent and trademark office; intellectual property rights; international trade disputes; health care.

U.S. Department of Justice, Antitrust Division

Consultant, June 1996–present
Economist (part time), January 1983–May 1995
Economist (full time), October 1980–December 1982

Regulatory

Analyzed various competitive issues posed by Bell Company entry into long-distance telecommunications services and submitted affidavit to Federal Communications Commission on behalf of Justice Department

Testimony

Presented expert testimony to courts in successful challenges of merger and of consent decree

Mergers

Investigated mergers in several industries and helped to design appropriate relief

Business Practices

Worked on vertical-restraints cases (tying, exclusive dealing, resale price maintenance, exclusive territorial arrangements) and horizontal-conduct cases (collusion and predation)

Legislation, Congressional Matters, Division Reports

Provided input to Antitrust Division's Merger Guidelines (1992) and Vertical Restraints Guidelines (1984) Helped draft Division comments on various Congressional legislation and responses to inquiries in several areas including price discrimination and dealer termination

Cooperation with Foreign Competition Authorities

Interacted with competition officials from several countries and agencies Helped comment on following documents Canadian Fair Trade Commission's guidelines on predatory pricing, and on price discrimination. Japanese Fair Trade Commission's guidelines on distribution systems, on sole import distributorships, and on joint R&D, Korean Fair Trade Commission's guidelines on unfair trade practices in international agreements, OECD papers on predatory pricing, on competition policy and franchising, and on interaction between trade and competition policies

Other Professional Experience

Senior Advisor, The Brattle Group, Economic, Environmental & Management Counsel, Cambridge, MA and Washington DC, November 1996-present

OECD Lecturer in Seminar on Vertical Restraints for competition officials from Czech Republic, Hungary, Poland, and Slovakia in Cracow, Poland, November 20-22, 1995

Consultant in private antitrust and regulatory matters

ILADES Participated in designing and teaching a short course in industrial organization to policymakers and executives in Santiago, Chile, June 1994.

Pew Freedom Fellows Program Taught short course in microeconomics to twenty Fellows from transition economies, annually, January 1993–present. (Fellows hold middle-level or upper-level positions in government and private business)

Center for Economic Development, Slovakia Academic Advisory Board

World Bank Consultant

Abt Associates/USAID Advised Government of Zimbabwe in Harare on formulating antitrust law, summer 1993 (consultant to Abt, work funded by USAID's Implementing Policy Change Project)

LANGUAGES

French, Hebrew, Romanian (speak and read all three fairly well; write French and Hebrew adequately)

HONORS

U.S. Department of Justice, Antitrust Division Special Achievement Awards
Brookings Institution: Research Fellow, 1979-80
University of California, Los Angeles: Earhart Fellowship, 1977-78
University of California, Los Angeles: Regents Fellowship, 1976-77
London School of Economics: Premchand Prize in Monetary Economics, 1976

PUBLICATIONS

Refereed Journals

"A Quality-Signaling Rationale for Aftermarket Tying," *Antitrust Law Journal*, vol 64 (Winter 1996) 387-404 (with Gregory J Werden)

"The Non-Existence of Pairwise-Proof Equilibrium," *Economics Letters*, vol 49 (1995) 251-259 (with R. Preston McAfee)

"Equity as a Call Option on Assets Some Tests for Failed Banks," *Economics Letters*, vol 48 (1995) 389-397 (with Behzad Diba and Chua-Hsiang Guo)

"Parallel Imports, Demand Dispersion, and International Price Discrimination," *Journal of International Economics*, vol 37 (November 1994) 167-195 (with David Malueg)

"Opportunism in Multilateral Vertical Contracting Nondiscrimination, Exclusivity, and Uniformity," *American Economic Review*, vol 84 (March 1994) 210-230 (with R Preston McAfee)

"Preemptive Investment, Toehold Entry, and the Mimicking Principle," *RAND Journal of Economics* vol 22 (Spring 1991) 1-13 (with David Malueg)

"Patent Protection through Discriminatory Exclusion of Imports," *Review of Industrial Organization*, vol 6 (No 3, 1991) 231-246

"Third-Degree Price Discrimination and Output Generalizing a Welfare Result," *American Economic Review*, vol 80 (December 1990) 1259-1262

"Investments in Oligopoly: Welfare Effects and Tests for Predation," *Oxford Economic Papers*, vol 41 (October 1989) 698-719.

"Entry Deterrence Externalities and Relative Firm Size," *International Journal of Industrial Organization*, vol 6 (June 1988) 181-197 (with Michael Baumann)

"The Competitive Effects of Vertical Agreements: Comment," *American Economic Review*, vol 77 (December 1987) 1063-1068.

"The Nature and Scope of Contestability Theory," *Oxford Economic Papers*, vol 38 Supplement (November 1986) 37-57.
This issue of the journal was published in parallel as *Strategic Behavior and Industrial Competition*. Morris et al Eds., Oxford University Press, 1986

"The Perverse Effects of the Robinson-Patman Act," *Antitrust Bulletin*, vol. 31 (Fall 1986): 733-757.

"Divisionalization and Entry Deterrence," *Quarterly Journal of Economics*, vol. 101 (May 1986) 307-321 (with Earl Thompson).

"*Illinois Brick* and the Deterrence of Antitrust Violations," *Hastings Law Journal*, vol. 35 (March 1984) 629–668 (with Gregory Werden).

"Contestable Markets: An Uprising in the Theory of Industry Structure: Comment," *American Economic Review*, vol. 73 (June 1983) 488-490 (with Robert Reynolds).

Monographs, Book Reviews, and Other Publications

"Telecommunications Reform in the United States: Promises and Pitfalls," in Paul J.J. Welfens and George Yarrow, Eds., *Telecommunications and Energy in Systemic Transformation*, Heidelberg and New York: Springer, 1997.

"Protecting Intellectual Property by Excluding Infringing Imports: An Economist's View of Section 337 of the U.S. Tariff Act," *Patent World*, Issue 25 (September 1990) 29-35.

Review Essay of Jean Tirole, The Theory of Industrial Organization, MIT Press, 1988. *Managerial and Decision Economics*, Vol. 11 (May 1990) 131-139.

Book Review of J. Stiglitz and F. Mathewson eds., New Developments in the Analysis of Market Structure, MIT Press, 1988. *Journal of Economic Literature*, Vol. 36 (March 1988) 133-135.

"Vertical Restraints," published in German by *Forschungsinstitut fur Wirtschaftsverfassung und Wettbewer* by E.V. Koln, Heft 5, 1984.

DISCUSSION PAPERS AND WORK IN PROGRESS

"Towards Competition in International Satellite Services: Rethinking the Role of INTELSAT," paper distributed at OECD Ad Hoc Meeting of Experts on Competition in Satellite Services, Paris, June 1995 (with Joseph E. Stiglitz and Eric Wolff).

"Competitive Markets in Generation: Economic Theory and Public Policy," paper presented at conference on "Electric Utility Restructuring: Whither Competition?" organized by International Association for Energy Economics Los Angeles Chapter, and Micronomics Inc., Los Angeles, May 1995.

"Exclusive Dealing for Rent Extraction," mimeo, January 1994 (with Serge Moresi and Francis O'Toole).

"Option Values of Deposit Insurance and Market Values of Net Worth: Some Evidence for U.S. Banks," mimeo, December, 1992 (with Behzad Diba and Chia-Hsiang Guo).

"Do Sunk Costs Discourage or Encourage Collusion?" U.S. Department of Justice, Antitrust Division, EPO Discussion Paper 85-10 (September 1985).

"Signalling Equilibria Based on Sensible Beliefs: Limit Pricing Under Incomplete Information," U.S. Department of Justice, Antitrust Division, EPO Discussion Paper 84-4 (May 1984) (with Maxim Engers).

OTHER SCHOLARLY ACTIVITIES

Seminars Presented

Bellcore
Bureau of Competition Policy, Industry Canada
California State University, Hayward
Columbia University
ENSAE, Paris
Federal Trade Commission
Georgetown University
George Washington University
International Trade Commission
Johns Hopkins University
New York University
Pennsylvania State University
Simon Fraser University
Tulane University
U S Department of Justice
University of Alberta
University of British Columbia
University of Calgary
University of California, Davis
University of California, Los Angeles
University of Maryland
University of Montreal
University of Pennsylvania
University of Toronto
University of Virginia

Conferences: Speaker or Discussant

Economics of Interconnection Forum, Federal Communications Commission, Washington DC, May 1996
Authors' Symposium on Competition Policy and Intellectual Property Rights, Canadian Bureau of Competition, Aylmer, Quebec, May 1996
Electric Generation Association, Annual Meetings, West Palm Beach, April 1996
"Wheeling & Dealing: Opportunities and Challenges in the New Electric Industry," conference sponsored by the Center for Regulatory Studies, Illinois State University and the Institute of Government and Public Affairs, University of Illinois- Urbana, Chicago, April 1996
"New Social and Economic Approaches to a Multimedia World," OECD Symposium, Tokyo, March 1996
"Telecommunications and Energy Regulation in Transition Economies," Center for Economic Development, Bratislava, October 1995
"Electric Utility Restructuring: Whither Competition?" organized by International Association for Energy Economics Los Angeles Chapter, and Micronomics Inc., Los Angeles, May 1995.
"New Learning on Barriers to Entry in Competition Policy," Canadian Bureau of Competition, Ottawa, March 1995
Southeastern Economic Theory Meetings, Charlottesville, October 1994
EARIE Conference, Tel Aviv, September 1993
Midwest International Economics Meetings, Pittsburgh, October 1992
Latin American Econometric Society, Mexico City, September 1992
Conference on Industrial Organization, Carleton University, Ottawa, July 1991
Workshop on Strategic and Dynamic Aspects of International Trade, SUNY at Stony Brook, July 1991

AEI Conference on "Innovation, Intellectual Property and World Competition," Washington DC, September 1990
EARIE Conference, Lisbon, September 1990
Conference on "International Trade and Technology," Brussels and London, November 1989
EARIE Conference, Budapest, August 1989
Conference on Strategy and Market Structure, Dundee University, Dundee, August 1988
Conference on "Firm Ownership and Competition," Graduate School of Business, Stanford University, June 1987
EARIE Conference, Berlin, August 1986
AEA Annual Meetings, Dallas, December 1984

Referee for Professional Journals

American Economic Review
Canadian Journal of Economics
Economica
Economic Journal
International Economic Review
International Journal of Industrial Organization
Journal of Business
Journal of Business Economics
Journal of Economic Dynamics and Control
Journal of Economic Theory
Journal of Economics and Management Strategy
Journal of Industrial Economics
Journal of Political Economy
Managerial and Decision Economics
Quarterly Journal of Economics
Quarterly Review of Economics and Business
RAND Journal of Economics
Review of Industrial Organization
Review of International Economics
Scandinavian Journal of Economics

Outside Evaluator–Research Proposals and Tenure & Promotion Cases

National Science Foundation
Small Business Administration
Several economics departments (identities disclosed on request)